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Claims

[c1] We claim as our invention:

1. A method for plating a component for a golf club head, the method comprising:

exposing the component to an alkaline solution, the component composed of a magnesium alloy material or magnesium, the alkaline solution having a pH of 8 to 15;

etching the component with an acidic solution consisting of a sulfuric acid or a chromic acid;

exposing the component to a bi-fluoride activator solution;

electroless plating a nickel or nickel-alloy based material on the component to create a first plating layer having a thickness ranging from 0.0005 inch to 0.001 inch;

electroless plating a nickel alloy based material on the first plating layer to a create a second plating layer having a thickness ranging from 0.0005 inch to 0.001 inch;

depositing a chrome or chromate layer on the second plating layer to create a plated component with a chromium layer, the chrome or chromate layer having a thickness ranging from 0.00001 inch to 0.00002 inch; and

heating the plated component with the chromium layer

at a temperature ranging from 400^{O}F to 550^{O}F for a time period ranging from 60 minutes to 180 minutes.

[c2] 2. The method according to claim 1 wherein the bi-fluoride is an ammonium fluoride.

[c3] 3. The method according to claim 1 the alkaline solution has a temperature ranging from 120^{O}F to 200^{O}F.

[c4] 4. The method according to claim 1 wherein the bi-fluoride activator solution has a temperature ranging from 120^{O}F to 200^{O}F.

[c5] 5. The method according to claim 4 wherein the component is exposed to the bi-fluoride activator solution for a period of five to ten minutes.

[c6] 6. The method according to claim 1 wherein the electroless plating of the component is performed at a temperature ranging from 80^{O}F to 110^{O}F.

[c7] 7. The method according to claim 1 wherein the component is a sole section.

[c8] 8. The method according to claim 1 wherein the component is an aft-body.

[c9] 9. The method according to claim 1 wherein the component is the entire golf club head.

[c10] 10. A method for plating a component for a golf club head, the method comprising:

exposing the component to an alkaline solution, the component composed of a magnesium alloy material or magnesium, the alkaline solution having a pH of 12 to 14;

etching the component with an acidic solution consisting of a chromic acid;

exposing the component to a bi-fluoride activator solution;

electroless plating a nickel or nickel-alloy based material on the component to create a first plating layer having a thickness ranging from 0.0004 inch to 0.001 inch;

electroless plating a nickel alloy based material on the first plating layer to a create a second plating layer having a thickness ranging from 0.0004 inch to 0.001 inch;

heating the component with the second plating layer at a temperature ranging from 400^{O}F to 550^{O}F for a time period ranging from 60 minutes to 180 minutes; and

depositing a chrome layer on the second plating layer to create a plated component with a chromium layer, the chrome layer having a thickness ranging from 0.00001 inch to 0.00002 inch.

[c11] 11. The method according to claim 10 wherein the bi-fluoride is selected from the group consisting of ammo-

nium fluoride, potassium fluoride and sodium fluoride.

[c12] 12. The method according to claim 10 the alkaline solution has a temperature ranging from 120^{O}F to 200^{O}F.

[c13] 13. The method according to claim 10 wherein the bi-fluoride activator solution has a temperature ranging from 60^{O}F to 100^{O}F.

[c14] 14. The method according to claim 13 wherein the component is exposed to the bi-fluoride activator solution for a period of one to two minutes.

[c15] 15. The method according to claim 10 wherein the electroless plating of the component is performed at a temperature ranging from 80^{O}F to 110^{O}F.

[c16] 16. The method according to claim 10 wherein the component is a sole section.

[c17] 17. The method according to claim 10 wherein the component is an aft-body.

[c18] 18. The method according to claim 10 wherein the component is the entire golf club head.

[c19] 19. A method for plating a component for a golf club head, the method comprising:
exposing the component to an alkaline solution, the

component composed of a magnesium alloy material or magnesium;

electroless plating a nickel or nickel-alloy based material on the component to create a first plating layer having a thickness ranging from 0.0004 inch to 0.001 inch;

electroless plating a nickel alloy based material on the first plating layer to a create a second plating layer having a thickness ranging from 0.0004 inch to 0.001 inch; and

heating the component with the second plating layer at a temperature ranging from 400^{O}F to 550^{O}F for a time period ranging from 60 minutes to 180 minutes.